Henry B. Ruh WB8HEE
140 Asch Drive
Whitmore Lake MI

may 73

DIFFERENT MOBILE AND FIXED ANTENNAS

designed to improve 2m FM

Tired of spotty, picket fence mobile operation on 2m FM into your favorite repeater? Read on your XYL will hate you, but you'll love the new range and Q5 reports.

Whitmore Lake is about 65 road miles from the Detroit River, and about 40 miles from the Detroit repeaters. The nearest repeater is ARROW on 37–97 in Ann Arbor, about 10 miles away. To work into the DART or Great Lakes repeaters took a high hill, power, or a lot of luck, with a multitude of dead spots throughout the area. The problem was how to work into Detroit with a Rising Sun Special 15W Super Sniffer? An amplifier would certainly do the job, but the cost was too much for the household budget, without giving up Saturday night popcorn. So the idea changed from increasing power to increasing effective radiated power (antennas to you appliance ops). To increase antenna gain from a ¼ wave to a 5/8 wave antenna (about 3½ dB) is easy. Go down and buy a new antenna for about $30, a mount, and drill a new hole, or go a different way, save the car, and get more gain. A ½ wave antenna seemed the answer, as it is about as long as the average 5/8 whip and offers a smidgeon more gain. To eliminate flutter, a solid or very stiff radiator was needed. Not wanting to be outdone, by mounting the half wave above a ½ wave mirror image would give 3–4 dB more gain.

My XYL notwithstanding, it was decided to spend $12.50 on a CushCraft Ringo, a fixed station antenna, and mount it on the car – no mean task indeed. Since the antenna is 38 in. from top insulator to top of radiator, and a ½ wave mount would also be 38 in. and all solid as a rock, it looked like a good tree trimmer project like the old 160 meter mobile monsters. But a little ham ingenuity proved to be the fitting touch. Mount a standard roof rack luggage carrier (single bar) near the front of the old VW square back. Mount two plumbing floor flanges, one on top and one on the bottom

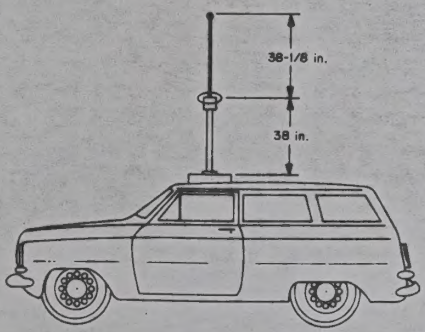

Fig. 1. Mounting the Ringo antenna ½ wavelength above the automobile's roof does wonders for your radiation pattern.

with 3/16 in. bolts, two of which run through the carrier holes. Screw a 31 in. long 1 in. OD water pipe in the top flange, weld a 6 in. stainless steel spring on top of the pipe and a 4 in. piece on top of the spring and mount the Ringo on top of the 4 in. piece. *Shazam,* a new super mobile antenna which doesn't get permanent wave treatment on bridges or trees. Leaving the spring out can cause a lot of trouble, as the first model proved.

RG-8 was used for feed line, dressing it down the support pipe and in through a side window in the VW. The rig used for all tests was a Drake ML-2.

Now, what about results? Fantastic! While the useful limit of range into Detroit was west to a few miles past Ann Arbor, range was now extended to Jackson, Michigan, with spotty results from Parma. An increase of 30–40 miles. Nothing short of spectacular.

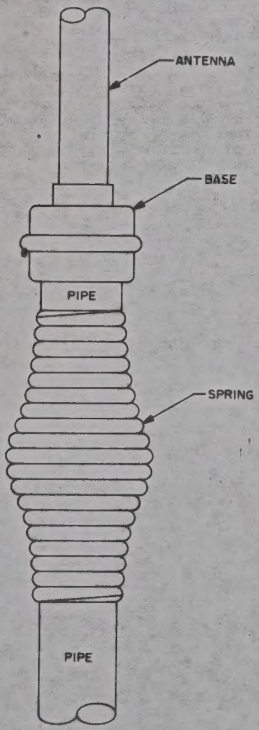

Fig. 2. A spring is used as the Ringo/pipe junction . . . this makes it easy on those low hanging branches.

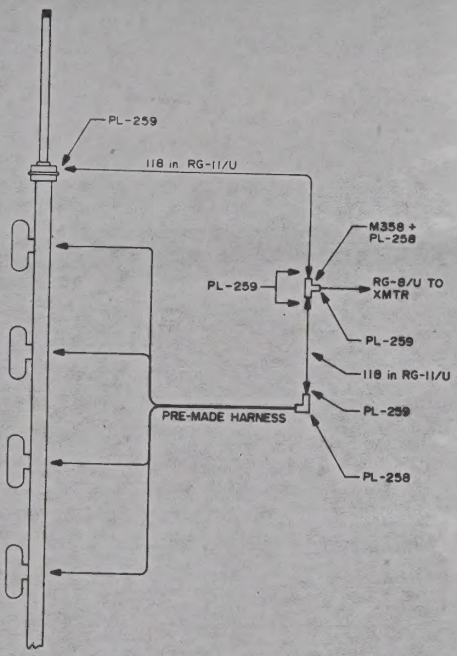

Fig. 3. The Ringo can be added to a dipole array to improve the radiation pattern.

Now what do you do if you bought the Ringo and won't break down and put it on your car (or the XYL said nothing doing to the family chariot). Stack it on top of a 4 dipole array for additional gain and range. If the dipole is set up for unidirectional coverage, the CushCraft Ringo, when mounted 38 in. above the topmost element of the other antenna will fill in the back and side areas to round out the pattern with some additional forward gain. If the vertical dipoles are arranged for omnidirectional gain, the figure and range are increased in all directions. Again, the bottom insulator of the Ringo should be 38 in. above the top of the uppermost dipole element. To match into a 50Ω coax, make a harness of two lengths, each 118 in. long of RG11 solid coax. Connect one end to the Ringo, the other to the end of the harness supplies by the dipole manufacturer (i.e., FM4D) and connect the other ends to a T connector, to which you connect the coax from your transceiver. If this still doesn't give you enough range, buy an amplifier.

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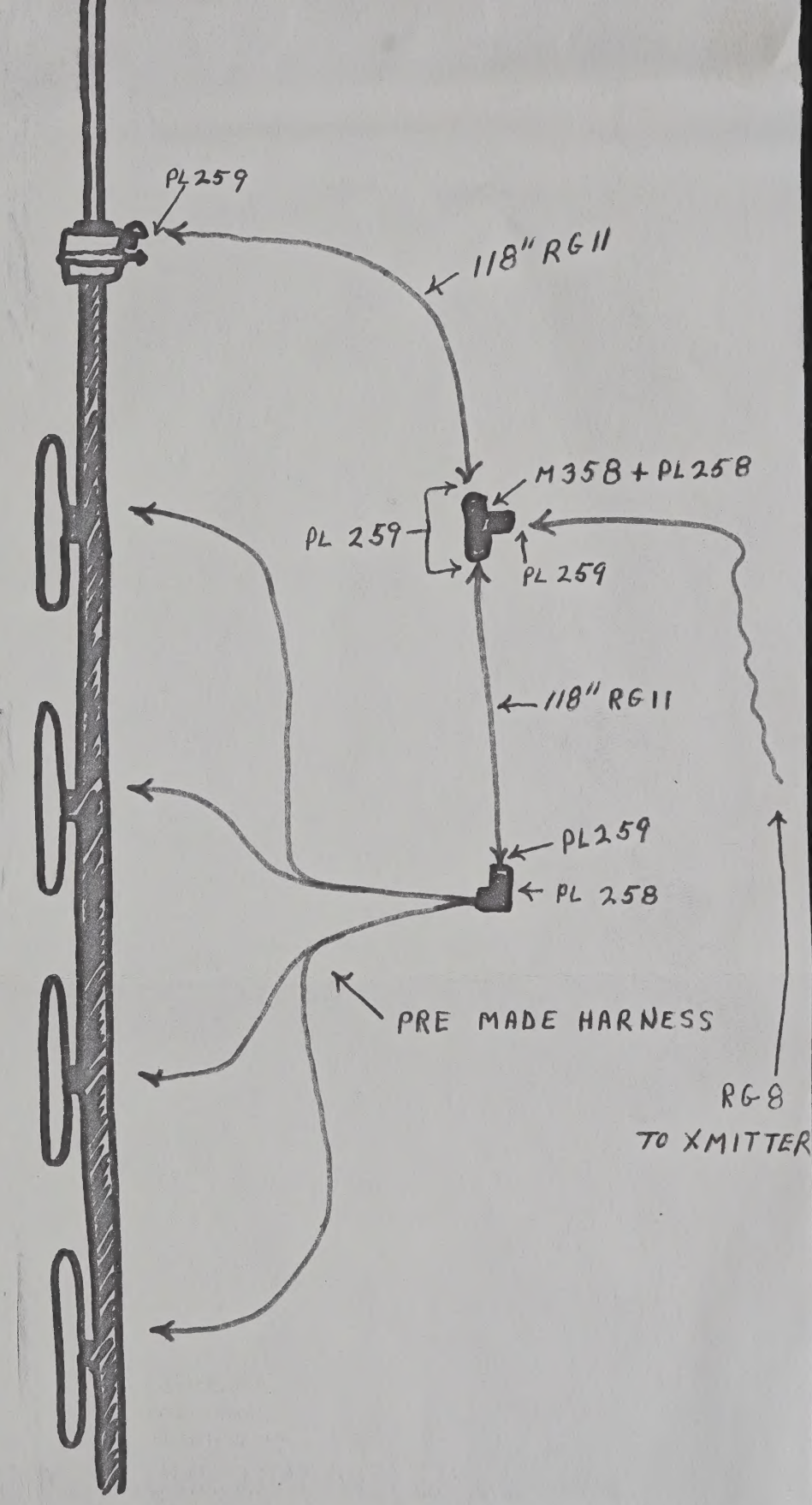
PL259
118" RG11
M358 + PL258
PL 259
PL 259
118" RG11
PL259
PL 258
PRE MADE HARNESS
RG-8
TO XMITTER

COMMUNICATIONS UNLIMITED

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CHICAGO, ILLINOIS 60631
Area Code 312 - 763-0002

FIG. 1